

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Canceled)

2. (Currently Amended) An antibody, or functional fragment thereof, comprising a heavy chain polypeptide comprising a first, a second and a third heavy chain CDR, and a light chain polypeptide comprising a first, a second and a third light chain CDR,

said first heavy chain CDR six CDRs selected from the group consisting of: CDRs referenced as SEQ ID NO:26, wherein the amino acid residue at position 6 is R or a conservative substitution of R, the amino acid residue at position 9 is M or a conservative substitution of M, and the amino acid residue at position 10 is S or a conservative substitution of S; SEQ ID NO: 26 wherein the amino acid residue at position 6 is H or a conservative substitution of H; SEQ ID NO: 26 wherein the amino acid residue at position 9 is I or a conservative substitution of I; SEQ ID NO: 26 wherein the amino acid residue at position 10 is T or a conservative substitution of T; SEQ ID NO: 26 wherein the amino acid residue at position 10 is A or a conservative substitution of A; SEQ ID NO: 26 wherein the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:43,; SEQ ID NO:44,; SEQ ID NO:45,; SEQ ID NO:46,; and SEQ ID NO:47,;

said second heavy chain CDR selected from the group consisting of: SEQ ID NO: 28 wherein the amino acid residue at position 9 is I or a conservative substitution of I, the amino acid residue at position 14 is S or a conservative substitution of S, the amino acid residue at position 16 is K or a conservative substitution of K, and the amino acid residue at position 17 is D or a conservative substitution of D; SEQ ID NO: 28 wherein the amino acid residue at position 9 is A or a conservative substitution of A; SEQ ID NO: 28 wherein the amino acid residue at position 9 is S or a conservative substitution of S; SEQ ID NO: 28 wherein the amino acid residue at position 14 is Y

or a conservative substitution of Y; SEQ ID NO: 28 wherein the amino acid residue at position 14 is A or a conservative substitution of A; SEQ ID NO: 28 wherein the amino acid residue at position 14 is H or a conservative substitution of H; SEQ ID NO: 28 wherein the amino acid residue at position 14 is G or a conservative substitution of G; SEQ ID NO: 28 wherein the amino acid residue at position 16 is Q or a conservative substitution of Q; SEQ ID NO: 28 wherein the amino acid residue at position 17 is S or a conservative substitution of S; SEQ ID NO: 28 wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino acid residue at position 14 is A or a conservative substitution of A; SEQ ID NO: 28 wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino acid residue at position 14 is Y or a conservative substitution of Y; SEQ ID NO: 28 wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino acid residue at position 14 is H or a conservative substitution of H; SEQ ID NO: 28 wherein the amino acid residue at position 9 is V or a conservative substitution of V; SEQ ID NO: 28 wherein the amino acid residue at position 9 is S or a conservative substitution of S, the amino acid residue at position 16 is D or a conservative substitution of D, and the amino acid residue at position 17 is K or a conservative substitution of K; SEQ ID NO:48; SEQ ID NO:49; SEQ ID NO:50; SEQ ID NO:51; SEQ ID NO:52; SEQ ID NO:53; SEQ ID NO:54; SEQ ID NO:55; SEQ ID NO:154; SEQ ID NO:155; SEQ ID NO:156; and SEQ ID NO:162;

said third heavy chain CDR selected from the group consisting of: SEQ ID NO: 30 wherein the amino acid residue at position 3 is D or a conservative substitution of D, the amino acid residue at position 4 is G or a conservative substitution of G, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 30 wherein the amino acid residue at position 3 is P or a conservative substitution of P; SEQ ID NO: 30 wherein the amino acid residue at position 3 is G or a conservative substitution of G; SEQ ID NO: 30 wherein the amino acid residue at position 3 is T or a conservative substitution of T; SEQ ID NO: 30 wherein the amino acid residue at position 3 is A or a conservative substitution of A; SEQ ID NO: 30 wherein the amino acid residue at position 4 is P or a conservative substitution of P; SEQ ID NO: 30 wherein the amino acid residue at position 4 is A or a conservative substitution of A; SEQ ID NO: 30 wherein the amino acid residue at position 4 is

H or a conservative substitution of H; SEQ ID NO: 30 wherein the amino acid residue at position 11 is P or a conservative substitution of P; SEQ ID NO: 30 wherein the amino acid residue at position 11 is N or a conservative substitution of N; SEQ ID NO:56; SEQ ID NO:57; SEQ ID NO:58; SEQ ID NO:59; SEQ ID NO:60; SEQ ID NO:61; SEQ ID NO:62; SEQ ID NO:63; and SEQ ID NO:64;

said first light chain CDR selected from the group consisting of: SEQ ID NO: 20 wherein the amino acid residue at position 4 is Q or a conservative substitution of Q, the amino acid residue at position 8 is N or a conservative substitution of N, the amino acid residue at position 9 is S or a conservative substitution of S, the amino acid residue at position 10 is G or a conservative substitution of G, and the amino acid residue at position 12 is Q or a conservative substitution of Q; SEQ ID NO: 20 wherein the amino acid residue at position 4 is R or a conservative substitution of R; SEQ ID NO: 20 wherein the amino acid residue at position 4 is S or a conservative substitution of S; SEQ ID NO: 20 wherein the amino acid residue at position 8 is S or a conservative substitution of S; SEQ ID NO: 20 wherein the amino acid residue at position 9 is Y or a conservative substitution of Y; SEQ ID NO: 20 wherein the amino acid residue at position 9 is W or a conservative substitution of W; SEQ ID NO: 20 wherein the amino acid residue at position 9 is H or a conservative substitution of H; SEQ ID NO: 20 wherein the amino acid residue at position 9 is R or a conservative substitution of R; SEQ ID NO: 20 wherein the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 20 wherein the amino acid residue at position 10 is R or a conservative substitution of R; SEQ ID NO: 20 wherein the amino acid residue at position 10 is H or a conservative substitution of H; SEQ ID NO: 20 wherein the amino acid residue at position 10 is I or a conservative substitution of I; SEQ ID NO: 20 wherein the amino acid residue at position 12 is K or a conservative substitution of K; SEQ ID NO: 20 wherein the amino acid residue at position 9 is W or a conservative substitution of W, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 20 wherein the amino acid residue at position 9 is Y or a conservative substitution of Y, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 20 wherein the amino acid residue at position 9 is Y or a conservative substitution of Y, and the amino acid residue at position 10 is H or a conservative

substitution of H; SEQ ID NO: 20 wherein the amino acid residue at position 9 is R or a conservative substitution of R, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 20 wherein the amino acid residue at position 9 is W or a conservative substitution of W, and the amino acid residue at position 10 is H or a conservative substitution of H; SEQ ID NO:65; SEQ ID NO:66; SEQ ID NO:67; SEQ ID NO:68; SEQ ID NO:69; SEQ ID NO:70; SEQ ID NO:71; SEQ ID NO:72; SEQ ID NO:73; SEQ ID NO:74; SEQ ID NO:75; SEQ ID NO:76; SEQ ID NO:157; SEQ ID NO:158; SEQ ID NO:159; SEQ ID NO:160; and SEQ ID NO:161;

said second light chain CDR consisting of the sequence referenced as SEQ ID NO: 22;

and said third light chain CDR selected from the group consisting of: SEQ ID NO: 24 wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is Y or a conservative substitution of Y; SEQ ID NO: 24 wherein the amino acid residue at position 5 is Q or a conservative substitution of Q; SEQ ID NO: 24 wherein the amino acid residue at position 5 is G or a conservative substitution of G; SEQ ID NO: 24 wherein the amino acid residue at position 5 is L or a conservative substitution of L; SEQ ID NO: 24 wherein the amino acid residue at position 5 is A or a conservative substitution of A; SEQ ID NO: 24 wherein the amino acid residue at position 5 is T or a conservative substitution of T; SEQ ID NO: 24 wherein the amino acid residue at position 5 is V or a conservative substitution of V; SEQ ID NO: 24 wherein the amino acid residue at position 6 is N or a conservative substitution of N; SEQ ID NO: 24 wherein the amino acid residue at position 6 is S or a conservative substitution of S; SEQ ID NO: 24 wherein the amino acid residue at position 6 is P or a conservative substitution of P; SEQ ID NO: 24 wherein the amino acid residue at position 6 is M or a conservative substitution of M; SEQ ID NO:77; SEQ ID NO:78; SEQ ID NO:79; SEQ ID NO:80; SEQ ID NO:81; SEQ ID NO:82; SEQ ID NO:83; SEQ ID NO:84; SEQ ID NO:85; and SEQ ID NO:86;

~~SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162,~~said antibody or

functional fragment thereof having at least a two-fold higher binding activity for denatured collagen over native collagen and wherein said antibody or functional fragment thereof does not comprise the following six CDRs: SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:24.

3. (Previously Presented) The antibody, or functional fragment thereof, of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:28; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:20; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

4. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:28; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:72; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

5. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:48; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:20; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

6. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:154; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

7. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:158; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

8. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:46; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:159; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

9. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:48; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:160; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

10. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:72; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

11. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

12. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:160; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

13. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:46; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:160; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

14. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:162; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:158; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

15. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:156; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

16. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:26; a heavy chain CDR2 referenced as SEQ ID NO:154; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain

CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

17. (Currently Amended) The antibody, or functional fragment thereof, of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

18. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:46; a heavy chain CDR2 referenced as SEQ ID NO:154; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:161; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

19. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:46; a heavy chain CDR2 referenced as SEQ ID NO:156; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:161; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

20. (Withdrawn) The antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises a heavy chain CDR1 referenced as SEQ ID NO:46; a heavy chain CDR2 referenced as SEQ ID NO:28; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:20; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

21. (Currently Amended) An antibody, or functional fragment thereof, comprising a heavy chain polypeptide comprising a first, second and third CDR,

said first CDR selected from the group consisting of: SEQ ID NO: NOS:26, 43, 44, 45,
wherein the amino acid residue at position 6 is R or a conservative substitution of R, the amino acid
residue at position 9 is M or a conservative substitution of M, and the amino acid residue at position
10 is T or a conservative substitution of T; SEQ ID NO: 45 wherein the amino acid residue at
position 6 is R or a conservative substitution of R, the amino acid residue at position 9 is M or a
conservative substitution of M, and the amino acid residue at position 10 is S or a conservative
substitution of S; SEQ ID NO: 45 wherein the amino acid residue at position 6 is H or a conservative
substitution of H and the amino acid residue at position 10 is S or a conservative substitution of S;
SEQ ID NO: 45 wherein the amino acid residue at position 9 is I or a conservative substitution of I
and the amino acid residue at position 10 is S or a conservative substitution of S; SEQ ID NO: 45
wherein the amino acid residue at position 10 is A or a conservative substitution of A; SEQ ID NO:
45 wherein the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID
NO: 26; SEQ ID NO: 43; SEQ ID NO: 44; SEQ ID NO: 46;; and SEQ ID NO: 47;;

said second CDR selected from the group consisting of SEQ ID NO: 155 wherein the amino
acid residue at position 9 is A or a conservative substitution of A, the amino acid residue at position
14 is Y or a conservative substitution of Y, the amino acid residue at position 16 is K or a
conservative substitution of K, and the amino acid residue at position 17 is D or a conservative
substitution of D; SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a
conservative substitution of I, the amino acid residue at position 14 is S or a conservative
substitution of S, the amino acid residue at position 16 is K or a conservative substitution of K, and
the amino acid residue at position 17 is D or a conservative substitution of D; SEQ ID NO: 155
wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino
acid residue at position 14 is S or a conservative substitution of S; SEQ ID NO: 155 wherein the
amino acid residue at position 9 is S or a conservative substitution of S, and the amino acid residue
at position 14 is S or a conservative substitution of S; SEQ ID NO: 155 wherein the amino acid
residue at position 9 is S or a conservative substitution of S, the amino acid residue at position 14 is
S or a conservative substitution of S, the amino acid residue at position 16 is D or a conservative
substitution of D, and the amino acid residue at position 17 is K or a conservative substitution of K;

SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a conservative substitution of I, and the amino acid residue at position 14 is Y or a conservative substitution of Y; SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a conservative substitution of I, and the amino acid residue at position 14 is A or a conservative substitution of A; SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a conservative substitution of I, and the amino acid residue at position 14 is H or a conservative substitution of H; SEQ ID NO: 155 the amino acid residue at position 9 is I or a conservative substitution of I, and the amino acid residue at position 14 is G or a conservative substitution of G; SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a conservative substitution of I, the amino acid residue at position 14 is S or a conservative substitution of S, and the amino acid residue at position 16 is Q or a conservative substitution of Q; SEQ ID NO: 155 wherein the amino acid residue at position 9 is I or a conservative substitution of I, the amino acid residue at position 14 is S or a conservative substitution of S, and the amino acid residue at position 17 is S or a conservative substitution of S; SEQ ID NO: 155 wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino acid residue at position 14 is A or a conservative substitution of A; SEQ ID NO: 155 wherein the amino acid residue at position 9 is A or a conservative substitution of A, and the amino acid residue at position 14 is H or a conservative substitution of H; SEQ ID NO: 155 wherein the amino acid residue at position 9 is V or a conservative substitution of V, and the amino acid residue at position 14 is S or a conservative substitution of S; SEQ ID NO: 28; SEQ ID NO: 48; SEQ ID NO: 49; SEQ ID NO: 50; SEQ ID NO: 51; SEQ ID NO: 52; SEQ ID NO: 53; SEQ ID NO: 54; SEQ ID NO: 55; SEQ ID NO: 154; SEQ ID NO: 156; and SEQ ID NO: 162;

and said third CDR selected from the group consisting of SEQ ID NO: 63 wherein the amino acid residue at position 3 is D or a conservative substitution of D, the amino acid residue at position 4 is G or a conservative substitution of G, and the amino acid residue at position 11 is P or a conservative substitution of P; SEQ ID NO: 63 wherein the amino acid residue at position 3 is D or a conservative substitution of D, the amino acid residue at position 4 is G or a conservative substitution of G, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 3 is P or a conservative substitution of P,

and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 3 is G or a conservative substitution of G, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 3 is T or a conservative substitution of T, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 3 is A or a conservative substitution of A, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 4 is P or a conservative substitution of P, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 4 is A or a conservative substitution of A, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 4 is H or a conservative substitution of H, and the amino acid residue at position 11 is Y or a conservative substitution of Y; SEQ ID NO: 63 wherein the amino acid residue at position 11 is N or a conservative substitution of N; SEQ ID NO: 30; SEQ ID NO: 56; SEQ ID NO: 57; SEQ ID NO: 58; SEQ ID NO: 59; SEQ ID NO: 60; SEQ ID NO: 61; SEQ ID NO: 62; SEQ ID NO: 63, and 64;

~~wherein at least one of said CDRs has at least one amino acid substitution, and wherein said antibody or functional fragment thereof has at least a two-fold higher binding activity for denatured collagen over native collagen.~~

22. (Currently Amended) An antibody, or functional fragment thereof, comprising a light chain polypeptide comprising a first, second, and third CDR,

said first CDR selected from the group consisting of SEQ ID NO: 157 wherein the amino acid residue at position 4 is Q or a conservative substitution of Q, the amino acid residue at position 8 is N or a conservative substitution of N, the amino acid residue at position 9 is W or a conservative substitution of W, the amino acid residue at position 10 is Y or a conservative substitution of Y, and the amino acid residue at position 12 is Q or a conservative substitution of Q; SEQ ID NO: 157 wherein the amino acid residue at position 4 is Q or a conservative substitution of Q, the amino acid

residue at position 8 is N or a conservative substitution of N, the amino acid residue at position 9 is S or a conservative substitution of S, the amino acid residue at position 10 is G or a conservative substitution of G, and the amino acid residue at position 12 is Q or a conservative substitution of Q; SEQ ID NO: 157 wherein the amino acid residue at position 4 is R or a conservative substitution of R, the amino acid residue at position 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 4 is S or a conservative substitution of S, the amino acid residue at position 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 8 is S or a conservative substitution of S, the amino acid residue at position 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 9 is Y or a conservative substitution of Y, the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 9 is W or a conservative substitution of W, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 9 is H or a conservative substitution of H, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at position 9 is R or a conservative substitution of R, and the amino acid residue at position 10 is G or a conservative substitution of G; SEQ ID NO: 157 wherein the amino acid residue at 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 157 wherein the amino acid residue at 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is R or a conservative substitution of R; SEQ ID NO: 157 wherein the amino acid residue at 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is H or a conservative substitution of H; SEQ ID NO: 157 wherein the amino acid residue at 9 is S or a conservative substitution of S, and the amino acid residue at position 10 is I or a conservative substitution of I; SEQ ID NO: 157 wherein the amino acid residue at position 9 is S or a conservative substitution of S, the amino acid residue at position 10 is G or a conservative substitution of G, and the amino acid residue at position 12 is K or a conservative substitution of K; SEQ ID NO: 157 wherein the amino acid residue at position 9 is Y or a

conservative substitution of Y, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 157 wherein the amino acid residue at position 9 is Y or a conservative substitution of Y, and the amino acid residue at position 10 is H or a conservative substitution of H; SEQ ID NO: 157 wherein the amino acid residue at position 9 is R or a conservative substitution of R, and the amino acid residue at position 10 is Y or a conservative substitution of Y; SEQ ID NO: 157 wherein the amino acid residue at position 9 is W or a conservative substitution of W, and the amino acid residue at position 10 is H or a conservative substitution of H; SEQ ID NO: 20; SEQ ID NO: 65; SEQ ID NO: 66; SEQ ID NO: 67; SEQ ID NO: 68; SEQ ID NO: 69; SEQ ID NO: 70; SEQ ID NO: 71; SEQ ID NO: 72; SEQ ID NO: 73; SEQ ID NO: 74; SEQ ID NO: 75; SEQ ID NO: 76; SEQ ID NO: 158; SEQ ID NO: 159; SEQ ID NO: 160; and SEQ ID NO: 161;

said second CDR consisting of SEQ ID NO:22;

and said third CDR selected from the group consisting of SEQ ID NO: 77 wherein the amino acid residue at position 5 is Q or a conservative substitution of Q, and the amino acid residue at position 6 is Y or a conservative substitution of Y; SEQ ID NO: 77 wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is Y or a conservative substitution of Y; SEQ ID NO: 77 wherein the amino acid residue at position 5 is G or a conservative substitution of G; SEQ ID NO: 77 wherein the amino acid residue at position 5 is L or a conservative substitution of L; SEQ ID NO: 77 wherein the amino acid residue at position 5 is A or a conservative substitution of A; SEQ ID NO: 77 wherein the amino acid residue at position 5 is T or a conservative substitution of T; SEQ ID NO: 77 wherein the amino acid residue at position 5 is V or a conservative substitution of V; SEQ ID NO: 77 wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is N or a conservative substitution of N; SEQ ID NO: 77 wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is S or a conservative substitution of S; SEQ ID NO: 77 wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is P or a conservative substitution of P; SEQ ID NO: 77

wherein the amino acid residue at position 5 is S or a conservative substitution of S, and the amino acid residue at position 6 is M or a conservative substitution of M; SEQ ID NOS: 24; SEQ ID NO: 77; SEQ ID NO: 78; SEQ ID NO: 79; SEQ ID NO: 80; SEQ ID NO: 81; SEQ ID NO: 82; SEQ ID NO: 83; SEQ ID NO: 84; SEQ ID NO: 85, and SEQ ID NO: 86;

~~wherein at least one of said CDRs has at least one amino acid substitution, and~~ wherein said antibody or functional fragment thereof has at least a two-fold higher binding activity for denatured collagen over native collagen.

Claims 23-41 (Canceled).

42. (Currently Amended) The functional fragment of any of claims ~~2-22~~1-22, wherein said functional fragment is selected from the group consisting of Fv, Fab, F(ab)₂ and scFV.

43. (Currently Amended) A nucleic acid encoding the antibody of any of claims ~~2-22~~1-22.

44. (Withdrawn) A method of targeting angiogenic vasculature, comprising administering an antibody, or functional fragment thereof, said antibody or functional fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

45. (Withdrawn) The method of claim 44, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID

NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

46. (Withdrawn) The method of claim 44, wherein said antibody, or functional fragment thereof, further comprises a therapeutic moiety.

47. (Withdrawn) The method of claim 44, wherein said antibody, or functional fragment thereof, further comprises a detectable moiety.

48. (Withdrawn) A method of inhibiting angiogenesis, comprising administering an antibody, or functional fragment thereof, said antibody or functional fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

49. (Withdrawn) The method of claim 48, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID

NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

50. (Withdrawn) The method of claim 48, wherein said antibody, or functional fragment thereof, further comprises a therapeutic moiety.

51. (Withdrawn) A method of targeting a tumor, comprising administering an antibody, or functional fragment thereof, said antibody or functional fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

52. (Withdrawn) The method of claim 51, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

53. (Withdrawn) The method of claim 51, wherein said antibody, or functional fragment thereof, further comprises a therapeutic moiety.

54. (Withdrawn) The method of claim 51, wherein said antibody, or functional fragment thereof, further comprises a detectable moiety.

55. (Withdrawn) A method of inhibiting tumor growth, comprising administering an antibody, or functional fragment thereof, said antibody or functional fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

56. (Withdrawn) The method of claim 55, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

57. (Withdrawn) The method of claim 55, wherein said antibody, or functional fragment thereof, further comprises a therapeutic moiety.

58. (Withdrawn) A method of detecting angiogenic vasculature, comprising contacting angiogenic vasculature with an antibody, or functional fragment thereof, said antibody or functional

fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

59. (Withdrawn) The method of claim 58, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

60. (Withdrawn) The method of claim 58, wherein said antibody, or functional fragment thereof, further comprises a detectable moiety.

61. (Withdrawn) A method of inhibiting metastasis, comprising administering an antibody, or functional fragment thereof, said antibody or functional fragment thereof comprising one or more complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR selected from the group consisting of SEQ ID NOS:26, 28 and 30 or a light chain CDR selected from the group consisting of SEQ ID NOS:20, 22 and 24, and said antibody or functional fragment thereof having specific binding activity for a cryptic collagen epitope.

62. (Withdrawn) The method of claim 61, wherein said antibody or functional fragment comprises one or more CDRs selected from the group consisting of CDRs referenced as SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:154, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:157, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:160, SEQ ID NO:161, and SEQ ID NO:162.

63. (Withdrawn) The method of claim 61, wherein said antibody, or functional fragment thereof, further comprises a therapeutic moiety.

Claims 64-83 (Canceled).

84. (Previously Presented) An antibody, or functional fragment thereof, comprising six CDRs, wherein said CDRs are selected from the group consisting of: amino acids 6-10 of SEQ ID NO:26; SEQ ID NO:28; SEQ ID NO:30; SEQ ID NO:20; SEQ ID NO:22; SEQ ID NO:24; amino acids 6-10 of SEQ ID NO:43; amino acids 6-10 of SEQ ID NO:44; amino acids 6-10 of SEQ ID NO:45; amino acids 6-10 of SEQ ID NO:46; amino acids 6-10 of SEQ ID NO:47; SEQ ID NO:48; SEQ ID NO:49; SEQ ID NO:50; SEQ ID NO:51; SEQ ID NO:52; SEQ ID NO:53; SEQ ID NO:54; SEQ ID NO:55; SEQ ID NO:56; SEQ ID NO:57; SEQ ID NO:58; SEQ ID NO:59; SEQ ID NO:60; SEQ ID NO:61; SEQ ID NO:62; SEQ ID NO:63; SEQ ID NO:64; SEQ ID NO:65; SEQ ID NO:66; SEQ ID NO:67; SEQ ID NO:68; SEQ ID NO:69; SEQ ID NO:70; SEQ ID NO:71; SEQ ID NO:72; SEQ ID NO:73; SEQ ID NO:74; SEQ ID NO:75; SEQ ID NO:76; SEQ ID NO:77; SEQ ID NO:78; SEQ ID NO:79; SEQ ID NO:80; SEQ ID NO:81; SEQ ID NO:82; SEQ ID NO:83; SEQ ID NO:84; SEQ ID NO:85; SEQ ID NO:86; SEQ ID NO:154; SEQ ID NO:155; SEQ ID NO:156; SEQ ID

NO:157; SEQ ID NO:158; SEQ ID NO:159; SEQ ID NO:160; SEQ ID NO:161; and SEQ ID NO:162; said antibody or functional fragment thereof having at least a two-fold higher binding activity for denatured collagen over native collagen, and wherein said antibody or functional fragment thereof does not comprise the following six CDRs: amino acids 6-10 of SEQ ID NO:26; SEQ ID NO:28; SEQ ID NO:30; SEQ ID NO:20; SEQ ID NO:22; and SEQ ID NO:24.

85. (Previously Presented) The antibody, or functional fragment thereof, of claim 84, wherein said antibody, or functional fragment thereof, comprises: a heavy chain CDR1 consisting of amino acids 6-10 of SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

86. (Previously Presented) An antibody, or functional fragment thereof, wherein said antibody, or functional fragment thereof, comprises: a heavy chain CDR1 consisting of amino acids 6-10 of SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.

87. (Previously Presented) A grafted antibody, or functional fragment thereof, wherein said grafted antibody, or functional fragment thereof, comprises: a heavy chain CDR1 consisting of amino acids 6-10 of SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77, wherein the heavy chain CDRs are grafted into a VHIII/JH6 heavy chain variable region framework referenced as SEQ ID NO:8.

88. (Previously Presented) The grafted antibody, or function fragment thereof, of claim 87, wherein said VHIII/JH6 heavy chain variable region framework is altered to contain at least one amino acid substitution.

89. (Previously Presented) A grafted antibody, or functional fragment thereof, wherein said grafted antibody, or functional fragment thereof, comprises: a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77, wherein the heavy chain CDRs are grafted into a VHIII/JH6 heavy chain variable region framework referenced as SEQ ID NO:8.

90. (Previously Presented) An antibody, or functional fragment thereof, wherein said antibody, or functional fragment thereof, comprises: a heavy chain CDR1 referenced as SEQ ID NO:45; a heavy chain CDR2 referenced as SEQ ID NO:155; a heavy chain CDR3 referenced as SEQ ID NO:63; a light chain CDR1 referenced as SEQ ID NO:157; a light chain CDR2 referenced as SEQ ID NO:22; and a light chain CDR3 referenced as SEQ ID NO:77.